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09/540,163	03/31/2000	Carlos H. Morales	ADAPP137	2702

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EXAMINER	
TRAN, ELLEN C	

ART UNIT	PAPER NUMBER
2134	

DATE MAILED: 09/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/540,163	MORALES, CARLOS H.	
	Examiner	Art Unit	
	Ellen C. Tran	2134	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communication: amendment filed 1 July 2005, with an original filing date of 31 March 2000.

2. Claims 1-24 are currently pending in this application. Claims 1, 14, and 21 are independent claims. Amendment to the claims is accepted.

Response to Arguments

3. Applicant's arguments with respect to claims 1-22 have been considered but are not persuasive.

In response to applicant's argument on page 11, "The cited portion of Wang discusses the generic workings of SCSI. In contrast, the claimed invention includes generating a key data pattern. Applicant respectfully submits that the Office is utilizing hindsight to support the obviousness rejection because the cited portion of Wang does not disclose or indicate that a key data pattern is used ... Applicant submits that Wang does not discuss or suggest usage of a key data pattern". The Office disagrees with the argument for several reasons. The "key data pattern" is the header or ID used in typical SCSI communication. The applicant's specification and claims provide an understanding as of the definition of the "key data pattern". Starting on page 11 of the specification indicates, "Figure 2 depicts the key data pattern 113 ... the key data pattern 113 preferably has a key header 113a and a pattern 113b ... The pattern 113b is either a default pattern out of SCSI specifications or an application defined data ... the key header 113a contains an ID byte, a host ID ...". The reason the portion of Wang was shown is because as described in the claimed invention as well as the

reference a device's SCSI ID is used to establish communication parameters. The Office also disagrees with argument; because it does not make sense there is not any hindsight involved with the rejection. Wang discloses the use of the "key data pattern" or SCSI ID to establish communication parameters. Furthermore, the only meaning of the term "key" that can be applied according to the specification is that the "key data pattern" allows one to determine the origin of the SCSI communications the key is not used for encryption and is not created by some random calculation allowing for secrecy but rather a function of the device ID.

In response to applicant's argument on page 12, "In addition, Applicant respectfully submits that the cited portion of Wang does not disclose or suggest writing the key data pattern to an echo buffer and reading the key data pattern from the echo buffer". The Office disagrees with argument the NetSCSI auto-configuration protocol has the same meaning as an echo buffer. The protocol performs the functions of "writing and reading" when it assigns a SCSI LUN and ID and integrates the disk supply characterization information with the Raid controller. Note "assigns" interpreted to have the same meaning as writing, "integrates ... supply" interpreted to have the same meaning as "reading".

In response to applicant's argument on page 12, "Therefore, Applicant respectfully submits that the cited portions of Long and/or Wang do not disclose or suggest how throughput capability of the physical connection can be determined through the writing and reading of key data pattern". The Office disagrees the writing and reading of key data pattern was shown in the rejection based in Wang as noted

above. The use of this information key data pattern same as SCSI ID as well as I/O profile is used to improve the data transfer rate performance.

In response to applicant's argument on page 13, "In addition the independent claims as amended include the feature of determining whether the key data pattern read from the echo buffer includes a byte miscompare. Applicant respectfully submits that the cited portions of Long and/or Wang do not disclose this feature". The Office disagrees with this argument as noted by applicant this is an amendment to the independent claims, the rejection below shows this feature as best understood in Wang. See Wang col. 19, line 59 through col. 20, line 19. Note "miscompare" is not a word in the English dictionary an objection is made in the Office Action below to instances in the claims and specification where the term is used.

In response to applicant's argument on page 13, "Applicant respectfully submits that Hwang is directed to a collision detecting method at the physical layer in a discrete multitone data communication network ... In contrast, the claimed invention includes the feature of examining a byte miscompare". The Office disagree with argument, the applicant's is now arguing the references individually where it is the combination of Wang, Long, and Hwang that teaches this feature of determining a collision.

Objections

4. Claims 1-24 are objected to because of the following informalities: The use of the word "miscompare" the term is not a valid English word and is not in any known dictionary. Appropriate correction is required.

5. The disclosure is objected to because of the following informalities: The use of the word "miscompare" the term is not a valid English word and is not in any known dictionary. Appropriate correction is required.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. **Claims 1-4, 14, 15, 21, 22, and 23,** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. U.S. Patent No. 6,834,326 (hereinafter '326) in further view of Long U.S. Patent No. 5,890,014 (hereinafter '014).

As to independent claim 1, "A method for verifying bus performance in a multiple initiator environment a first initiator" is taught in '326 col. 9, lines 13-42 ""The RAID controller will automatically determine the underlying network, the number of disk, capacity of the disks, block sizes of the disk, cache information, and other disk characterization information. Network information includes if the disk is directly attached and if not, the number of hops/delay from the controller";

"implementing the method, comprising: generating a key data pattern including a key header and a pattern the key header including data identifying the first initiator" is shown in '326 col. 15, lines 21-67 "SCSI is an acronym for Small Computer System Interface. It recognizes hard disk and tape drives ... Caching is recognized Intelligent command queuing is supported. There are provisions for

intelligent self-test by a peripheral ... SCSI is both a bus specification, and a command set for use of that bus. The SCSI architecture is illustrated in FIG. 9. The core of the SCSI idea is to give complete device independence to the computer ... Devices on a SCSI bus are assigned a unique identification number between zero and sixteen (older versions of SCSI support up to only seven). Normally, the host adapter is given an identification number of sixteen";

"writing the key data pattern to an echo buffer of a target; reading the key data pattern from the echo buffer of the target; and" "read from the echo buffer" is disclosed in '326 col. 8 line 65 through col. 9, line 43 "To improve the manageability of the system, the disks may be autoconfigured. Note that the autoconfiguration is independent of the actual data transfer using NetRAID/NetSCSI. Disk can be assigned a SCSI LUN and ID via the NetSCSI autoconfiguration protocol, which is the first step in the process. NetSCSI can operate over IP or raw Ethernet as desired by the user of defaulting to IP/UDP. Whatever transport protocol is used, the addresses of the disks are sent to the RAID controller and vice-versa. The NetRAID control protocol will integrate these functions and will provide RAID parameters to the disk including RAID-level, strip size, and multicast group. The disks will supply characterization information (capacity, performance metrics, etc.) back to the RAID controller for use in the autoconfiguration process";

"the examining includes determining whether the key data pattern read from the echo buffer includes a byte miscompare" is taught in '326 col. 19, line 59 through col. 20, line 19 "The REQUEST SENSE command: Whenever a command returns a

CHECK CONDITION status, the high-level Linux SCSI code automatically obtains more information about the error by executing the REQUEST SENSE. This command returns a sense key and a sense code ... The 16 possible sense keys are described below 0x0e VOLUME OVERFLOW";

the following is not taught in '326: **"and examining the key header to ascertain a level of communication integrity of a physical connection with the target, the examining determining a throughput capability of the physical connection"** however '014 teaches "The I/O profiler examines each incoming I/O request and identifies patterns in the stream of I/O requests, in the form of an I/O profile. Identified I/O request patterns are identified to the device driver which determines if the internal performance parameter setting of the data storage device targeted by the operating system's I/O request are optimally configured to the outcome of the determination, new internal performance parameter setting are commanded by the device driver to the targeted data storage device, outside of the data stream so as to improve the target data storage device's data transfer rate performance and overall data throughput" in col. 3, lines 27-39.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of '326, a multiple initiator bus that controls multiple devices to include a means to control the speed in which data is transferred. One of ordinary skill in the art would have been motivated to perform such a modification to control the speed in which data is transferred to efficiently utilize today's computer capabilities (see '014 col. 2, lines 64 et seq.) "Because data transfer speed has

become the hallmark of efficient computer operation, there is a need fir a system which allows the individual performance characteristics of a disk drive to be optimized (tuned) to accommodate maximum data throughput a particular bands of data transfer sizes".

As to dependent claims 2, "wherein generating the key header includes: generating a byte 0; generating a byte 1; generating a byte 2; and generating a byte 3" is taught in '326 col. 19, lines 1-29 "Like the TEST UNIT READY, INQUIREY is called during the SSI initialization process and again dummy values are returened based on the reason discussed previously. The data returned by INQUIRY is shown in the table below. It also show the dummy data returned to the high-level SCSI code by the Net SCSI driver .... Byte # 0 Peripheral qualifier ... 1 RMD Device modifier .... 2 ISO version ... 3 AE- TrmIOP Reserved ... Vendor identification String .... Product identification string ".

As to dependent claims 3, "wherein the byte 0 is an ID byte, the byte 1 is a host ID, the byte 2 is a logical negation of the host ID, and byte 3 is a logical negation of the ID byte" is shown in '326 col. 19, lines 1-29 and '326 col. 14, lines 17-42 "A number of possible FEC algorithm can be used ot protect any number of bits but the easiest is a parity algorithm"

As to dependent claim 4, "wherein the ID byte is a manufacturer signature ID, and the host ID is an initiator ID" is disclosed in '326 col. 19, lines 1-29.

As to independent claim 14, this claim is directed to the computer method of claim 1; therefore it is rejected along similar rationale.

As to independent claim 21, this claim is directed to a computer readable media having program instructions for the method of claim 1; therefore it is rejected along similar rationale.

As to dependent claim 15, "wherein before the key data pattern is generated, the method includes: sending an asynchronous inquiry to the target device the asynchronous inquiry being configured to request a transmission of a valid data pattern from the target device and receiving the valid data pattern from the target device in response to the asynchronous inquiry; and sending a synchronous inquiry to the target device, the synchronous inquiry being configured to request a faster transmission of another valid data pattern in order to negotiate an optimal throughput speed with the target device and receiving the another valid data pattern from the target device in response to the synchronous inquiry" is taught in '326 col. 19, lines 30-59 "The Peripheral qualifier specifies whether there is a device attached to the logical unit that was send the INQUIRY command. Device type code indicates the type of device attached. Inthis case, it is a direct access device ... AENC and TrmIOP are for support of asynchronous event nofification and Terminate I/O Process message ... Wide SCSI (Wbus16), synchronous data tansfer (Sync), command lining (Link), command queuing ".

As to dependent claims 23 and 24, these claims contain substantially similar subject matter as claims 2 and 3; therefore they are rejected along the same rationale.

8. **Claims 5-13, 16-20, and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over '326 in further view of '014 in further view of Hwang et al. U.S. Patent No. 6,339,599 (hereinafter '599).

As to dependent claim 5, "wherein examining the key header includes one of: determining whether the echo buffer returns an error indication" is taught in '326 col. 19, line 59 through col. 20 line 19 "The REQUEST SENSE command: Whenever a command returns a CHECK CONDITION status, the high-level Linux SCSI code automatically obtains more information about the error by executing the REQUEST SENSE. This command returns a sense key and a sense code ... The 16 possible sense keys are described below 0x0e VOLUME OVERFLOW";

the following is not taught in the combination of '326 and '014: **"determining whether data of the key header has been changed; or determining whether the data in the key header specifically indicates a collision with data from another initiator using a same key header system"** however '599 teaches "The present invention overcomes the noted problems involved in data networking and satisfies the above stated needs by providing a novel collision detecting method, at the physical layer, for use in a multi-point DMT communication system. The method of detecting a collision comprises transmitting a time mark at the beginning of a portion of a random access data communication, and transmitting a first ID signal representing ID data for identifying a communication station. The first ID signal is produced based on the time mark. Preferably, the first ID signal is transmitted between the time mark and a data portion of the random access data communication. The time mark distorted by a

communication channel is received by the receiver of the communication station that transmitted it. A second ID signal representing the same ID data is produced based on the received time mark. The second ID signal is compared with the ID signal received from the communication channel. A collision event is detected if the received ID signal does not match the second ID signal. In response to detection of the collision event, the transmission of the data portion may be terminated" in col. 4, lines 22-43.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of '326 and '014, a multiple initiator bus that controls multiple devices with a means control the speed in which data is transferred to include a means to identify collisions. One of ordinary skill in the art would have been motivated to perform such a modification because by detecting collisions early in the transmission cycle bandwidth can be saved (see '599 col. 3, line 47 through col. 4, line 17) "Due to the nature of communications over existing wiring, it is difficult to physically detect a collision event when multiple devices transmit data packets at the same time. A typical communications protocol requires each packet transmission to be acknowledged by the receiver ... Accordingly, the transmitter assumes that no collision event happened during the data packet transmission. If the ACK is not received, the transmitter assumes that the channel impairments cause the data packet to be lost. A collision event caused by multiple stations competing for a shared network usually occurs at the beginning of transmission ... Thus, the collision event cannot be detected until the end of transmission attempt. The longer the data packet the longer it will take for the transmitting station to determine that the collision event has occurred ... The sooner a

collision ca be detected by a transmitter, the sooner the transmitter can end the faulted transmission and stop wasting network bandwidth".

As to dependent claim 6, "wherein the determining of whether data of the key header has been changed occurs when the multiple initiators are heterogeneous" is shown in '599 col. 4, lines 22-43.

As to dependent claim 7, "wherein the determining of whether the data in the key header specifically indicates the collision occurs when the multiple initiators are homogeneous" is disclosed in '599 col. 4, lines 22-43.

As to dependent claim 8, "wherein when it is determined that the error indication is returned from the echo buffer, the first initiator being configured to rewrite the key data pattern to the echo buffer, the rewriting being performed for a set number of times before an adjustment is made to the level of communication integrity of the physical connection with the target" is taught in '326 col. 7, lines 33-48 "For mirrored disks, all n packets may be multicast and each receiver will acknowledge ... One can easily image monitoring and statistical analysis techniques to active various levels of FEC when the error rate crosses a particular threshold".

As to dependent claim 9, "wherein when it is determined that the data of the key header has been changed, the first initiator being configured to rewrite the key data pattern to the echo buffer, the rewriting being performed for a set number of times before an adjustment is made to the level of communication integrity of the physical connection with the target" is shown in '326 col. 7, lines 33-48.

As to dependent claim 10, "wherein when it is determined that the data in the key header specifically indicates the collision with data from another initiator using the same key header system; the first initiator being configured to rewrite the key data pattern to the echo buffer, the rewriting being performed for a set number of times before an adjustment is made to the level of communication integrity of the physical connection with the target" is disclosed in '326 col. 7, lines 33-48.

As to dependent claim 11, "wherein the collision occurs when a byte 0 matches a specific manufacturer ID, a byte 1 does not match the first initiator's ID; a byte 2 is a logical negation of byte 1, and a byte 3 is a logical negation of byte 0" is disclosed in '326 col. 9, line 62 through col. 10, line

As to dependent claim 12, "wherein when it is determined that data of the key header has been changed, it is assumed that a collision occurred" is taught in '599 '599 col. 4, lines 22-43.

As to dependent claim 13, "wherein writing the key data pattern includes: sending linked commands to the echo buffer to prevent the echo buffer from receiving data from another initiator, the linked commands being configured to link write and read commands and to disable a SCSI disconnection" is shown in '326 col. 17, line 60 through col. 18, line 11 "Control Field This byte holds bit flags used in linked command operations. If the Link low order bit is set, it signifies that the CDB is part of a linked series of commands. The Flag is bit is used to specify that the status code which the target returns on a successful completion of a linked command ... The

SCSI standard includes mandatory and optional SCSI commands. In the context of NetSCSI, the important mandatory commands are Test Unit Ready, Inquiry, Request Sense, Read and Write".

As to dependent claim 16, "wherein after the sending of the synchronous inquiry, the method includes: sending a read echo buffer description (REBD) command to the echo buffer of the target, the REBD command being configured to request information regarding a size of the echo buffer and whether the echo buffer supports collision detection" is taught in '599 col. 4, lines 22-43.

As to dependent claim 17, "further comprising: detecting a data collision during the examining of the key data pattern received from the echo buffer" is disclosed in '599 col. 4, lines 22-43;

"and if a collision is detected, the method includes, re-sending a WEB command with the key data pattern; and the re-sending being performed for a set number of times before an adjustment is made to the level of communication integrity of the physical connection between the first initiator and the target to the echo buffer" is taught in '326 col. 7, lines 33-48.

As to dependent claims 18, 19, and 20, these claims contain substantially similar subject matter as claims 2, 3, and 4; therefore they are rejected along the same rationale.

As to dependent claim 22, this claim contains substantially similar subject matter as claim 17; therefore they are rejected along the same rationale.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ellen C Tran whose telephone number is (571) 272-3842. The examiner can normally be reached from 6:00 am to 1:15 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory A Morse can be reached on (571) 272-3838. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ellen. Tran
Patent Examiner
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8 September 2005

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